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09/987,758	11/15/2001	Luc Dartois	Q67075	7485

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WASHINGTON, DC 20037

EXAMINER
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DSOUZA, JOSEPH FRANCIS A

ART UNIT	PAPER NUMBER
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2611

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05/29/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

Application No.

09/987,758

Applicant(s)

DARTOIS, LUC

Examiner

Adolf DSouza

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 16 April 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1 - 14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9 and 14 is/are allowed.
- 6) ☒ Claim(s) 1,2,4,6,7,11 - 13 is/are rejected.
- 7) ☒ Claim(s) 3,5,8 and 10 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

***Response to Arguments***

1. Applicant's arguments, see Pre-Appeal request for Review filed 4/16/2007 with respect to Claim 1 have been fully considered and are persuasive. The 35 USC 102(e) rejections of claims 1,2,4,6,7,11,12,13 have been withdrawn.

Argument: Applicant argued that Hellberg does not disclose that the "input sampling frequency corresponds to the modulation rate of the input signal" (Pre-Appeal Request for Review (4/16/2007)).

Response: Applicant has stated that the input sampling rate of 3.84 MHz is the modulation rate of the input signal (Pre-Appeal Request for Review (4/16/2007), page 1, last 2 lines+). However, Examiner could find no mention of this statement in the specification. The specification simply states that the input sampling rate is 3.84 MHz (Specification, page 8, lines 10 – 17). Nowhere does it state that 3.84 MHz is the modulation rate. Further, the phrase "modulation rate" does not appear anywhere in the specification. In fact, the word "modulation" does not appear in the specification. In view of the above, Examiner is rejecting independent claims 1 and 11 (and their corresponding dependent claims 2 – 5) under 35 USC 112/1. If Applicant contends that sampling rate equal to modulation rate is a novel feature of the invention, then that should have been disclosed in the specification and its introduction now will be considered new matter. If Applicant contends that sampling rate equal to modulation rate is a feature that is well known in the art, then Examiner maintains the 35 USC 103(a) rejection below.

In view of the above, the Final Office Action is withdrawn and a Non-Final Office Action is presented.

2. Applicant's arguments, with respect to the following points, filed 4/16/2007 have been fully considered but they are not persuasive.

Argument: Applicant argued "examiner asserts that channels are carriers" (Pre-Appeal Request for Review (4/16/2007), page 3, 1<sup>st</sup> paragraph).

Response: Applicant has himself implied in the specification that "channels are carriers" (Specification, page 4, lines 24 – 27). The channel number is associated with the particular carrier obtained from the DFT process. In other words, each DFT component is a channel or a carrier or a bin. This terminology is commonly used in multi-carrier systems like OFDM, where a channel or carrier or a bin are just different names for the same thing.

Argument: Applicant argued Hellberg discloses something different from "unitary modulus and opposite phase" (Pre-Appeal Request for Review (4/16/2007), page 3, 2<sup>nd</sup> paragraph).

Response: Examiner would like to point out some more instances in Hellberg to clarify the previous rejection. Hellberg discloses the phase compensation is performed by "unit modulus" operation (column, 11, lines 24 – 30) wherein the modulus is unity since the exponential phasor has unit magnitude. Also the opposite phase is clearly pointed out by Hellberg (column 12, lines 39 – 64). Here the phase compensation  $P_c(p)$  (column

12, line 55) is the negative of  $T_c(p)$  (column 12, line 45). Therefore, Examiner respectfully disagrees that Hellberg does not disclose "unitary modulus and opposite phase".

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1- 5, 11 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claims 1 and 11, Examiner could find no mention that the sampling rate is equal to the modulation rate, in specification. The specification simply states that the input sampling rate is 3.84 MHz (Specification, page 8, lines 10 – 17). Nowhere does it state that 3.84 MHZ is the modulation rate. Further, the phrase "modulation rate" does not appear anywhere in the specification. In fact, the word "modulation" does not appear in the specification.

Claims 2 – 5 are rejected because of their dependency on a rejected base claim.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 6, 7, 12, 13 are rejected under 35 U.S.C. 102(e) as being anticipated by Hellberg (US Patent 6,324,559).

With regard to claim 6, Hellberg discloses a method of optimizing the performance of a mobile radio system transmitter using processing operations including discrete Fourier transform (DFT) computation, filtering in the frequency domain, and inverse discrete Fourier transform (IDFT) computation, wherein, before effecting said DFT computation, a frequency shift DF is applied in the time domain equal to the algebraic difference between the required central frequency of the corresponding . filtered signal and the closest frequency sample coming from said DFT computation (col. 9, lines 5-62, col. 10, lines 55-67-col. 11, lines 1-67, col. 12, lines 1-13).

With regard to claim 7, Hellberg discloses a method of optimizing the performance of a mobile radio system transmitter using processing operations including discrete Fourier

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transform (DFT) computation, filtering in the frequency domain, and inverse discrete Fourier transform (IDFT) computation, wherein, before effecting said DFT computation, to compensate phase jumps between samples at the output of the IDFT, a complex multiplication is effected of the input samples by a complex of unit modulus and opposite phase to the phase jump to be compensated (col. 10, lines 45-67 - col. 11, lines 1-52).

With regard to claim 12, see rejection of claim 6. Hellberg further discloses a mobile radio ration system transmitter (col. 1, lines 12-22, 38-50).

With regard to claim 13, see rejection of claim 7. Hellberg further discloses a mobile radio ration system transmitter (col. 1, lines 12-22, 38-50)

### ***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 4, 11, are rejected under 35 U.S.C. 103(a) as being unpatentable over Hellberg (US Patent 6,324,559).

With regard to claim 1, Hellberg discloses a method of optimizing the performance of a mobile radio system multicarrier transmitter using processing operations comprising discrete Fourier transform computation, carriers shaping and/or filtering in the frequency domain, inverse discrete Fourier transform computation, overlapping of processed sample blocks, and an over sampling factor relating to ration between an input sampling frequency and an output sampling frequency, wherein, for each carrier, the input sampling frequency corresponds to the modulation rate of the input signal (col. 2, lines 9-36), and the length LDFT of the DFT and the length LIDFT of the IDFT are chosen in such a manner as to enable said over sampling ration to be satisfied and to enable said filtering (col. 2, lines 66-67 - col. 3, lines 1-12, col. 3, lines 51-67, col. 5, lines 42-51).

See Response to Arguments above for limitation regarding the sampling rate equal to the modulation rate.

With regard to claim 2, claim 2 inherits all the limitations of claim 1. Hellberg further discloses wherein, if the ratio LIDFT/LDFT is not an integer, the denominator of the fraction LIDFT/LDFT when simplified is chosen to be as small as possible, to provide the finest possible choice of the length L of the blocks of samples with no overlap at the input of the DFT, and therefore the finest possible choice of the percentage overlap (col. 5, lines 42-51).



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With regard to claim 4, claim 4 inherits all the limitations of claim 1. Hellberg further discloses if the ratio LDFT/LIDFT is an integer, the lengths LDFT and LIDFT are chosen in such a manner as to provide the finest possible choice of the oversampling factor or the output sampling frequency (col. 5, lines 42-51 ).

With regard to claim 11, see rejection of claim 1. Hellberg further discloses a mobile radio ration system transmitter (col. 1, lines 12-22, 38-50).

***Allowable Subject Matter***

8. Claims 3, 5, 8, 10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is statement of reasons for the indication of allowable subject matter:

The instant application discloses a method of optimizing the performance of a mobile ration system multicarrier transmitter. Prior art references show similar methods but fail to teach: "wherein, the input sampling frequency being equal to 3.84 MHz, the required value of the output sampling frequency being close to 80 MHz, and the required value of the frequency resolution being close to 81) kHz, LDFT is chosen to be equal to 45 and LIDFT is chosen to be equal to 1261)", as in claim 5; "wherein said blocks are rotated in

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such a manner that the LDFT-L zeros are placed as close as possible to the center of the blocks, to within one sample if L is odd", as in claim 10.

Claims 9 and 14 are allowed.

The following is statement of reasons for the indication of allowable subject matter:

The instant application discloses a method of optimizing the performance of a mobile communication system multicarrier transmitter. Prior art references show similar methods but fail to teach: "overlapping being obtained by adding LDFT - L zeros to blocks of L incident signal samples to obtain blocks of LDFT samples to be applied to a DFT of length LDFT, and wherein the LDFT samples of said blocks are rotated in such manner that the LDFT - L zeros are placed as close as possible to the a center of the blocks and the L signal samples are placed on either side of the LDFT - L zeros", as in claims 9 and 14.

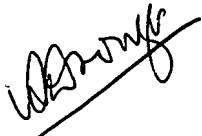
### ***Conclusion***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Adolf DSouza whose telephone number is 571-272-1043. The examiner can normally be reached on Monday through Friday from 8:00 AM to 5:00 PM EST.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Payne can be reached on 571-272-3024. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
AD

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Examiner  
Art Unit 2611

  
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SUPERVISORY PATENT EXAMINER